REMARKS

This Amendment, submitted in response to the non-final Office Action dated April 22, 2005, is believed to be fully responsive to the points of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims 11, 14 and 15 are pending. Claim 11 is amended above. No new matter has been added by the amendment.

Claims 11 and 12 have been rejected under 35 USC 102(b) over Saho. Claims 13-15 have been rejected under 35 USC 103(a) over Saho, in view of Weghaupt. Applicants respectfully submit the following remarks in support of the patentability of the claims over the cited art.

1. 35 USC 102(b):

Claims 11 and 12 have been rejected under 35 USC 102(b) over Saho. Saho is not identified expressly in the Office Action. However, USP 5,426,949 (Saho) is included in Applicants' earlier IDS. Applicants assume that this is the Saho reference cited by the Examiner.

Claim 11 has been amended to include the additional recitations of original Claims 12 and 13 and to clarify that the secondary coolant circulation system does not supply the secondary cryogen to the primary coolant circulation system. Support for the amendment can be found for example, in original Claims 12 and 13, in FIG. 2, and in the description presented in paragraph 22 of the present application (beginning on page 5 and continuing to page 6). As amended, Claim 11 recites a superconducting machine including a superconductive device, a vacuum enclosure containing and thermally insulating the superconductive device, a cold-trap configured to condense gases generated within the vacuum enclosure, and a primary coolant circulation system adapted to force flow of a primary cryogen to and from the superconductive device, where the primary coolant circulation system includes a primary cooling line configured to cool the superconducting device. The superconducting machine further includes a primary cryogenic cooling system configured to cool the primary cryogen in the primary coolant circulation system upstream of the superconductive device and a secondary coolant circulation system adapted to force flow of a secondary cryogen to and from the cold-trap.

The secondary coolant circulation system includes a secondary cooling line configured to cool the cold-trap. The secondary coolant circulation system does not supply the secondary cryogen to the primary coolant circulation system. An inlet temperature of the secondary cooling line is below about the triple point for Hydrogen. The superconducting machine further includes a secondary cryogenic cooling system configured to cool the secondary cryogen in the secondary coolant circulation system upstream of the cold-trap.

Saho is directed to a vacuum vessel having a cooled member. Saho employs three cooling circuits: a main cooling circuit, a pre-cooling circuit and a heat shield cooling circuit (Abstract; Claim 13). The pre-cooling circuit cools the main cooling circuit prior to operation of the main cooling circuit by passage of fluid from the pre-cooling circuit into the main cooling circuit (Abstract; see also Claim 2). Thus, the pre-cooling circuit of Saho differs from the secondary coolant circulation system of Claim 11, for at least the following reasons: the secondary coolant circulation system does not supply the secondary cryogen to the primary coolant circulation system, whereas the pre-cooling circuit of Saho supplies fluid to the main cooling circuit of Saho.

The heat shield cooling circuit of Saho cools a heat shield for the cooled member (Abstract). The heat shield cooling circuit is a liquid nitrogen circuit (Col. 2, lines 65-68; Claim 4) and includes a liquid nitrogen holding tank (Col. 4, lines 33-39; see also Col. 5, lines 40-46 and Col. 6, lines 17-25.) The Examiner cites the liquid nitrogen tank as supplying the secondary cryogenic cooling system recitation of Claim 11. However, the heat shield cooling circuit does not include a secondary cooling line configured to cool the cold-trap, where an inlet temperature of the secondary cooling line is below about the triple point for Hydrogen, as recited by Claim 11. Rather, the heat shield cooling circuit cools a heat shield to about liquid Nitrogen temperatures (77K), which are well in excess of the triple point for Hydrogen. Similarly, in an alternate embodiment described in Col. 10, lines 45-65, a small helium circuit of an intermediate temperature is used for cooling the heat shield. High pressure helium gas is expanded, and the medium pressure 50K helium gas (which is also well in excess of the triple point for Hydrogen) is used to cool the heat shield to a temperature of about 60K. For at least these reasons, Saho does not disclose the secondary coolant circulation system recitation of Claim 11.

In view of the above, Applicants respectfully submit that Claim 11 is not anticipated by Saho and respectfully request that the rejection of Claim 11 under 35 USC 102(b) be withdrawn.

2. **35 USC 103(a)**:

Claims 13-15 have been rejected under 35 USC 103(a) over Saho, in view of Weghaupt. Applicants note that Weghaupt is not identified in the Office Action. Nor is Weghaupt cited in attachments to the Office Action. In a July 21, 2005 phone call, the Examiner clarified that Weghaupt is USP 4,297,603 and indicated that he would send an interview summary and corrected form PTO-892. Applicants thank the Examiner for this clarification.

As noted above, Claim 11 has been amended to include the additional recitations of original Claim 13. Amended Claim 11 is discussed above.

Weghaupt is directed to an arrangement for cooling the rotor of an electric machine with a superconducting field winding. Weghaupt supplies a phase mixture of externally supplied helium via inlet chamber 9.1 to co-rotating, mixing chamber 15, which is centrally collated in the interior of the rotor body 2 (Col. 4, lines 58-67). Within mixing chamber 15, a ring 17 of liquid helium is formed and supplies a first coolant stream for cooling the field winding 3 (Col. 5, lines 1-6). The at least partially evaporated helium is conducted through outer loop S2 to cool cold- and damper- shield 7 (Col. 5, lines 6-17). Predominantly gaseous helium flows through outer loop S2 (Col. 6, lines 42-45), and the heat absorption considerably warms-up the helium in the cold- and damper-shield 7 (Col. 6, lines 54-56).

The Examiner cites Weghaupt in part to show that cooling below the triple point of helium is known in the art. Applicants note that Claim 11 recites that the inlet temperature of the secondary cooling line is below about the triple point for *Hydrogen.*

Regardless, Claim 11 recites in part a cold-trap configured to condense gases generated within said vacuum enclosure... and a secondary coolant circulation system adapted to force flow of a secondary cryogen to and from the cold-trap, where the secondary coolant circulation system comprises a secondary cooling line configured to cool the cold-trap, and where an inlet temperature of the secondary cooling line is below about the triple point for Hydrogen. The Examiner argues that it would have been

obvious to modify the coldtrap of Saho based on the teachings of Weghaupt. However, the Examiner has not pointed to any teaching in Saho of the recited combination of a coldtrap plus a secondary coolant circulation system configured to cool the coldtrap. Rather, the Examiner appears to rely on the heat shield cooling circuit to supply the secondary coolant recitation system recitation of Claim 11. However, the heat shield cooling circuit does not cool a coldtrap. Rather, it cools a heat shield. (See the discussion in Section 1 above.) Accordingly, Applicants respectfully submit that the Examiner has not pointed to every element of Claim 11 in the cited references and that the argument to combine the two references ignores that fact that the heat shield cooling circuit of Saho supplies a heat shield, not a cold trap.

For at least these reasons, Applicants respectfully submit that Claim 11 is patentably distinguishable over the cited art, either alone or in combination. Further, as Claims 14 and 15 depend from Claim 11, these claims are also patentably distinguishable over the cited art for at least the reasons presented with respect to Claim 11. Accordingly, Applicants respectfully request that the rejections under 35 USC 103(a) be withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Please charge all applicable fees associated with the submittal of this Response and any other fees applicable to this application to the Assignee's Deposit Account No. 07-0868.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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